

SEQUENCE LISTING

<110> CHUGAI RESEARCH INSTITUTE FOR MOLECULAR MEDICINE, INC.

<120> Tumor suppressor gene

<130> C1-104PCT

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<150> JP 1999-118806

<151> 1999-04-26

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<170> PatentIn Ver. 2.0

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<211> 2829

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<213> Homo sapiens

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<221> CDS

<222> (52).. (1140)

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Ala Ser Gln Ala Glu Val Glu Ser Glu Ala Gly Trp Gly Met Val Thr

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Pro Asp Leu Leu Phe Ala Glu Gly Thr Ala Ala Tyr Ala Arg Gly Asp

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Trp Pro Gly Val Val Leu Ser Met Glu Arg Ala Leu Arg Ser Arg Ala

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Ala Leu Arg Ala Leu Arg Leu Arg Cys Arg Thr Gln Cys Ala Ala Asp

80

Phe Pro Trp Glu Leu Asp Pro Asp Trp Ser Pro Ser Pro Ala Gln Ala

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Ser Gly Ala Gly Ala Leu Arg Asp Leu Ser Phe Phe Gly Gly Leu Leu

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Arg Arg Ala Ala Cys Leu Arg Arg Cys Leu Gly Pro Pro Ala Ala His

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Ser Leu Ser Glu Glu Met Glu Leu Glu Phe Arg Lys Arg Ser Pro Tyr

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Asn Tyr Leu Gln Val Ala Tyr Phe Lys Ile Asn Lys Leu Glu Lys Ala

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Val Ala Ala Ala His Thr Phe Phe Val Gly Asn Pro Glu His Met Glu

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Met Gln Gln Asn Leu Asp Tyr Tyr Gln Thr Met Ser Gly Val Lys Glu

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ctg gga gtg cga ctc tac tca gag gaa cag cca cag gaa gct gtg ccc 729			
Leu Gly Val Arg Leu Tyr Ser Glu Glu Gln Pro Gln Glu Ala Val Pro			
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His Leu Glu Ala Ala Leu Gln Glu Tyr Phe Val Ala Tyr Glu Glu Cys			
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Arg Ala Leu Cys Glu Gly Pro Tyr Asp Tyr Asp Gly Tyr Asn Tyr Leu			
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gag tac aac gct gac ctc ttc cag gcc atc aca gat cat tac atc cag 873			
Glu Tyr Asn Ala Asp Leu Phe Gln Ala Ile Thr Asp His Tyr Ile Gln			
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180 185 190
 195 200 205 210
 215 220 225
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Ser Arg Glu Lys Pro Phe Glu Asp Phe Leu Pro Ser His Tyr Asn Tyr

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Leu Gln Phe Ala Tyr Tyr Asn Ile Gly Asn Tyr Thr Gln Ala Gly Glu

320

Cys Ala Lys Thr Tyr Leu Leu Phe Phe Pro Asn Asp Glu Val Met Asn

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Gln Asn Leu Ala Tyr Tyr Ala Ala Met Leu Gly Glu Glu His Thr Arg

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Ser Ile Gly Pro Arg Glu Gln Gly Thr

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acaaccaaag aataaatgat tcatggtttt ttttaaaaaa aaaaaaaaaa 2829

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Leu Leu Arg Arg Ala Ala Cys Leu Arg Arg Cys Leu Gly Pro Pro Ala

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Ala His Ser Leu Ser Glu Glu Met Glu Leu Glu Phe Arg Lys Arg Ser

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Pro Tyr Asn Tyr Leu Gln Val Ala Tyr Phe Lys Ile Asn Lys Leu Glu

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Lys Ala Val Ala Ala Ala His Thr Phe Phe Val Gly Asn Pro Glu His

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Met Glu Met Gln Gln Asn Leu Asp Tyr Tyr Gln Thr Met Ser Gly Val

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185

190

Lys Glu Ala Asp Phe Lys Asp Leu Glu Thr Gln Pro His Met Gln Glu

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200

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Phe Arg Leu Gly Val Arg Leu Tyr Ser Glu Glu Gln Pro Gln Glu Ala

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Val Pro His Leu Glu Ala Ala Leu Gln Glu Tyr Phe Val Ala Tyr Glu

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Glu Cys Arg Ala Leu Cys Glu Gly Pro Tyr Asp Tyr Asp Gly Tyr Asn

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<221> CDS

<222> (52)..(2259)

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Val Arg Ala Leu Lys Leu Leu Thr Thr Leu Leu Ala Val Val Ala Ala

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Ala Ser Gln Ala Glu Val Glu Ser Glu Ala Gly Trp Gly Met Val Thr

20

25

30

cct gat ctg ctc ttc gcc gag ggg acc gca gcc tac gcg cgc ggg gac 201

Pro Asp Leu Leu Phe Ala Glu Gly Thr Ala Ala Tyr Ala Arg Gly Asp

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45

50

tgg ccc ggg gtg gtc ctg agc atg gaa cgg gcg ctg cgc tcc cgg gca 249

Trp Pro Gly Val Val Leu Ser Met Glu Arg Ala Leu Arg Ser Arg Ala

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60

65

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Ala Leu Arg Ala Leu Arg Leu Arg Cys Arg Thr Gln Cys Ala Ala Asp

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75

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Phe Pro Trp Glu Leu Asp Pro Asp Trp Ser Pro Ser Pro Ala Gln Ala

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tcg ggc gcc ggc gcc ctg cgc gac ctg agc ttc ttc ggg ggc ctt ctg 393

Ser Gly Ala Gly Ala Leu Arg Asp Leu Ser Phe Phe Gly Gly Leu Leu

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cgt cgc gct gcc tgc ctg cgc cgc tgc ctc ggg ccg ccg gcc gcc cac 441

Arg Arg Ala Ala Cys Leu Arg Arg Cys Leu Gly Pro Pro Ala Ala His

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Ser Leu Ser Glu Glu Met Glu Leu Glu Phe Arg Lys Arg Ser Pro Tyr

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Asn Tyr Leu Gln Val Ala Tyr Phe Lys Ile Asn Lys Leu Glu Lys Ala

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180	185	190													
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Ala Asp Phe Lys Asp Leu Glu Thr Gln Pro His Met Gln Glu Phe Arg															
195	200	205	210												
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Leu Gly Val Arg Leu Tyr Ser Glu Glu Gln Pro Gln Glu Ala Val Pro															
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Arg Ala Leu Cys Glu Gly Pro Tyr Asp Tyr Asp Gly Tyr Asn Tyr Leu															
245					250					255					
gag tac aac gct gac ctc ttc cag gcc atc aca gat cat tac atc cag															873
Glu Tyr Asn Ala Asp Leu Phe Gln Ala Ile Thr Asp His Tyr Ile Gln															
260	265	270													

275 280 285 290

295 300 305

310 315 320

325 330 335

340 345 350

355 360 365 370

ctg gaa aaa gaa ctg ctt ttc ttc gct tat gat gtt ttt gga att ccc 1209

Leu Glu Lys Glu Leu Leu Phe Phe Ala Tyr Asp Val Phe Gly Ile Pro

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ttt gtg gat ccg gat tca tgg act cca gaa gaa gtg att ccc aag aga 1257

Phe Val Asp Pro Asp Ser Trp Thr Pro Glu Glu Val Ile Pro Lys Arg

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cag gag att ggg aac ctt atg aag gaa atc gag acc ctt gtg gaa gag 1353

Gln Glu Ile Gly Asn Leu Met Lys Glu Ile Glu Thr Leu Val Glu Glu

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aag acc aag gag tca ctg gat gtg agc aga ctg acc cgg gaa ggt ggc 1401

Lys Thr Lys Glu Ser Leu Asp Val Ser Arg Leu Thr Arg Glu Gly Gly

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ccc ctg ctg tat gaa ggc atc agt ctc acc atg aac tcc aaa ctc ctg 1449

Pro Leu Leu Tyr Glu Gly Ile Ser Leu Thr Met Asn Ser Lys Leu Leu

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aat ggt tac cag cgg gtg gtg atg gac ggc gta atc tct gac cac gag 1497

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1004345-10004

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Arg Lys Asp Asp Ser His Pro Val His Val Asp Asn Cys Ile Leu Asn

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Ala Glu Thr Leu Val Cys Val Lys Glu Pro Pro Ala Tyr Thr Phe Arg

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Asp Tyr Ser Ala Ile Leu Tyr Leu Asn Gly Asp Phe Asp Gly Gly Asn

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Phe Tyr Phe Thr Glu Leu Asp Ala Lys Thr Val Thr Ala Glu Val Gln

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His Gly Val Lys Ala Val Thr Arg Gly Gln Arg Cys Ala Ile Ala Leu

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10045815 40364

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<213> Homo sapiens

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Glu Cys Arg Ala Leu Cys Glu Gly Pro Tyr Asp Tyr Asp Gly Tyr Asn

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365

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Phe Tyr Gly Val Thr Val Phe Lys Ala Leu Lys Leu Gly Gln Glu Gly
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Lys Val Pro Leu Gln Ser Ala His Leu Tyr Tyr Asn Val Thr Glu Lys

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Val Arg Arg Ile Met Glu Ser Tyr Phe Arg Leu Asp Thr Pro Leu Tyr

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555

560

Phe Ser Tyr Ser His Leu Val Cys Arg Thr Ala Ile Glu Glu Val Gln

565

570

575

Ala Glu Arg Lys Asp Asp Ser His Pro Val His Val Asp Asn Cys Ile

580

585

590

Leu Asn Ala Glu Thr Leu Val Cys Val Lys Glu Pro Pro Ala Tyr Thr

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Phe Arg Asp Tyr Ser Ala Ile Leu Tyr Leu Asn Gly Asp Phe Asp Gly

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Gly Asn Phe Tyr Phe Thr Glu Leu Asp Ala Lys Thr Val Thr Ala Glu

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Val Gln Pro Gln Cys Gly Arg Ala Val Gly Phe Ser Ser Gly Thr Glu

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Asn Pro His Gly Val Lys Ala Val Thr Arg Gly Gln Arg Cys Ala Ile

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Ala Leu Trp Phe Thr Leu Asp Pro Arg His Ser Glu Arg Asp Arg Val

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Gln Ala Asp Asp Leu Val Lys Met Leu Phe Ser Pro Glu Glu Met Asp

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Leu Ser Gln Glu Gln Pro Leu Asp Ala Gln Gln Gly Pro Pro Glu Pro

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 Gly Arg Arg Arg Arg Arg Leu Thr Gly Cys Gly Glu Ser Glu Pro Gly
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Leu Arg Ser Arg Ala Ala Leu Arg Ala Leu Arg Leu Arg Cys Arg Thr
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110 115 120 125

130 135 140

145 150 155

160 165 170

175 180 185

190 195 200 205

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Pro His Met His Glu Phe Arg Leu Gly Val Arg Leu Tyr Ser Glu Glu

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Lys Pro Gln Glu Ala Val Pro His Leu Glu Ala Ala Leu Gln Glu Tyr

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Phe Val Ala Asp Glu Glu Cys Arg Ala Leu Cys Glu Gly Pro Tyr Asp

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Tyr Asp Gly Tyr Asn Tyr Leu Asp Tyr Ser Ala Asp Leu Phe Gln Ala

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Ile Thr Asp His Tyr Val Gln Val Leu Asn Cys Lys Gln Asn Cys Val

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Thr Glu Leu Ala Ser His Pro Ser Arg Glu Lys Pro Phe Glu Asp Phe

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Glu Tyr Arg Arg Pro Asn Leu Leu Glu Lys Glu Leu Leu Phe Phe Ala

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Tyr Asp Ile Phe Gly Ile Pro Phe Val Asp Pro Asp Ser Trp Thr Pro

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10045815-10001

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Thr Met Asn Ser Lys Val Leu Asn Gly Ser Gln Arg Val Val Met Asp

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Thr Pro Asn Glu Lys Phe Tyr Gly Val Thr Val Leu Lys Ala Leu Lys

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Ser Ser Gly Thr Glu Asn Pro His Gly Val Lys Ala Val Thr Arg Gly			
655	660	665	
cag cgc tgc gcc atc gcc ctg tgg ttc acg ctg gat cct cgg cac agt			2066
Gln Arg Cys Ala Ile Ala Leu Trp Phe Thr Leu Asp Pro Arg His Ser			
670	675	680	685
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Glu Arg Asp Arg Val Gln Ala Asp Asp Leu Val Lys Met Leu Phe Ser			
690	695	700	
cca gaa gag gtg gac ctc ccc cag gaa cag ccc ctg cct gac cag cag			2162
Pro Glu Glu Val Asp Leu Pro Gln Glu Gln Pro Leu Pro Asp Gln Gln			
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Gly Ser Pro Glu Pro Gly Glu Glu Phe Leu His Gly Ala Thr Val Leu			
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Gly Val Gly Ile Ala Gly His Thr Leu Leu Trp Ala Trp Leu

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Ala Ala Pro Asp Leu Leu Tyr Ala Glu Gly Thr Ala Ala Tyr Ser Arg

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1004515-102604

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Glu His Met Glu Met Arg Gln Asn Leu Asp Tyr Tyr Gln Thr Met Ser

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Gly Val Lys Glu Ala Asp Phe Arg Asp Leu Glu Ala Lys Pro His Met

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His Glu Phe Arg Leu Gly Val Arg Leu Tyr Ser Glu Glu Lys Pro Gln

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Glu Ala Val Pro His Leu Glu Ala Ala Leu Gln Glu Tyr Phe Val Ala

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Asp Glu Glu Cys Arg Ala Leu Cys Glu Gly Pro Tyr Asp Tyr Asp Gly

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250

255

Tyr Asn Tyr Leu Asp Tyr Ser Ala Asp Leu Phe Gln Ala Ile Thr Asp

260

265

270

His Tyr Val Gln Val Leu Asn Cys Lys Gln Asn Cys Val Thr Glu Leu

275

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285

Ala Ser His Pro Ser Arg Glu Lys Pro Phe Glu Asp Phe Leu Pro Ser

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His Tyr Asn Tyr Leu Gln Phe Ala Tyr Tyr Asn Ile Gly Asn Tyr Thr

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10045815 102601

325 330 - 335

340 345 350

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385 390 395 400

405 410 415

420 425 430

435 440 445

450 455 460

Ser Lys Val Leu Asn Gly Ser Gln Arg Val Val Met Asp Gly Val Ile
 465 470 475 480

Ser Asp Asp Glu Cys Gln Glu Leu Gln Arg Leu Thr Asn Ala Ala Ala
 485 490 495

Thr Ser Gly Asp Gly Tyr Arg Gly Gln Thr Ser Pro His Thr Pro Asn
 500 505 510

Glu Lys Phe Tyr Gly Val Thr Val Leu Lys Ala Leu Lys Leu Gly Gln
 515 520 525

Glu Gly Lys Val Pro Leu Gln Ser Ala Arg Met Tyr Tyr Asn Val Thr
 530 535 540

Glu Lys Val Arg Arg Val Met Glu Ser Tyr Phe Arg Leu Asp Thr Pro
 545 550 555 560

Leu Tyr Phe Ser Tyr Ser His Phe Val Cys Arg Thr Ala Ile Glu Glu
 565 570 575

Ser Gln Ala Glu Arg Lys Asp Ser Ser His Pro Val His Val Asp Asn
 580 585 590

Cys Ile Leu Asn Ala Glu Ala Phe Met Cys Ile Lys Glu Pro Pro Ala

10045815-10501

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685

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Ile Ala Gly His Thr Leu Leu Trp Ala Trp Leu

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Met Ala Val Thr Lys Gly Gly Cys Trp His Asp Ala Ser

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ggt cgc cgc cgc cgc cgc ctt acg ggt tgc ggc gag tct gag ccg gga 98

Gly Arg Arg Arg Arg Arg Leu Thr Gly Cys Gly Glu Ser Glu Pro Gly

15

20

25

tgg gac gtg gca gcc cct gac ctg ctt tac gca gag ggg acc gcg gcc 146

Trp Asp Val Ala Ala Pro Asp Leu Leu Tyr Ala Glu Gly Thr Ala Ala

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10043434001

tac tcg cgc agg gac tgg ccc ggg gtg gtc ctg aac atg gag cgg gct 194

Tyr Ser Arg Arg Asp Trp Pro Gly Val Val Leu Asn Met Glu Arg Ala

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ctg cgc tcg cgg gcg gcc ctg cgt gcc ctc cgc ctg cgc tgc cgc aca 242

Leu Arg Ser Arg Ala Ala Leu Arg Ala Leu Arg Leu Arg Cys Arg Thr

65

70

75

cgc tgt gcc acc gaa ctg ccg tgg gca ccg gac ctg gat ctc ggt ccg 290

Arg Cys Ala Thr Glu Leu Pro Trp Ala Pro Asp Leu Asp Leu Gly Pro

80

85

90

gac ccc agc ctg agc cag gac ccg ggc gcc gcc gcc ctg cac gac ctg 338

Asp Pro Ser Leu Ser Gln Asp Pro Gly Ala Ala Ala Leu His Asp Leu

95

100

105

cgc ttc ttc gga gcc gtg ctg cgc cgt gcc gcc tgc cta cgc cgc tgc 386

Arg Phe Phe Gly Ala Val Leu Arg Arg Ala Ala Cys Leu Arg Arg Cys

110

115

120

125

ctc ggg ccg ccc tct gcc cac ttg ctg agt gaa gaa ctg gac ctg gag 434

Leu Gly Pro Pro Ser Ala His Leu Leu Ser Glu Glu Leu Asp Leu Glu

130

135

140

ttc aac aag cgg agc ccg tac aac tac ctg cag gtc gcc tat ttc aag 482

Phe Asn Lys Arg Ser Pro Tyr Asn Tyr Leu Gln Val Ala Tyr Phe Lys

10045845 100004

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150

155

ata aac aag ctg gag aaa gct gtg gct gcg gca cac acc ttc ttt gtg 530

Ile Asn Lys Leu Glu Lys Ala Val Ala Ala Ala His Thr Phe Phe Val

160

165

170

ggc aat cct gag cac atg gag atg cgg cag aac ctc gac tat tac caa 578

Gly Asn Pro Glu His Met Glu Met Arg Gln Asn Leu Asp Tyr Tyr Gln

175

180

185

acc atg tct ggg gtg aag gag gca gac ttc agg gat ctc gag gcc aag 626

Thr Met Ser Gly Val Lys Glu Ala Asp Phe Arg Asp Leu Glu Ala Lys

190

195

200

205

ccc cat atg cat gag ttt cgg ctg ggg gta cga ctc tac tca gag gag 674

Pro His Met His Glu Phe Arg Leu Gly Val Arg Leu Tyr Ser Glu Glu

210

215

220

aag cca cag gaa gct gtg ccc cac ctg gag gcg gca ctg caa gag tac 722

Lys Pro Gln Glu Ala Val Pro His Leu Glu Ala Ala Leu Gln Glu Tyr

225

230

235

ttt gtg gcc gat gag gag tgc cgt gcc ctc tgc gaa ggg ccc tat gac 770

Phe Val Ala Asp Glu Glu Cys Arg Ala Leu Cys Glu Gly Pro Tyr Asp

240

245

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ctt gga gaa gaa gag gcc agc tcc atc agc ccc agg gag aat gcc gag 1106
Leu Gly Glu Glu Glu Ala Ser Ser Ile Ser Pro Arg Glu Asn Ala Glu

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gaa tac cga cgt cca aac ctg ttg gag aaa gaa ctg ctt ttc ttc gct				1154
Glu Tyr Arg Arg Pro Asn Leu Leu Glu Lys Glu Leu Leu Phe Phe Ala				
	370	375	380	
tat gac att ttt gga att ccc ttt gtg gat ccc gat tca tgg act cca				1202
Tyr Asp Ile Phe Gly Ile Pro Phe Val Asp Pro Asp Ser Trp Thr Pro				
	385	390	395	
gaa gaa gtg att ccc aag aga ttg caa gag aaa cag aag tct gaa cgg				1250
Glu Glu Val Ile Pro Lys Arg Leu Gln Glu Lys Gln Lys Ser Glu Arg				
	400	405	410	
gaa aca gcc gta cgc atc tcc cag gag att ggg aac ctt atg aag gaa				1298
Glu Thr Ala Val Arg Ile Ser Gln Glu Ile Gly Asn Leu Met Lys Glu				
	415	420	425	
atc gag acc ctt gtg gaa gag aag acc aag gag tct ctg gat gtg agc				1346
Ile Glu Thr Leu Val Glu Glu Lys Thr Lys Glu Ser Leu Asp Val Ser				
430	435	440	445	
aga ctg acc cgg gaa ggt ggt ccc ctg ctg tat gaa ggc atc agt ctc				1394
Arg Leu Thr Arg Glu Gly Gly Pro Leu Leu Tyr Glu Gly Ile Ser Leu				
	450	455	460	

acc atg aac tcc aaa gtc ttg aat ggc tcc cag cgg gtg gtg atg gat 1442
 Thr Met Asn Ser Lys Val Leu Asn Gly Ser Gln Arg Val Val Met Asp

465

470

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ggt gtg atc tct gat gat gag tgc cag gag ctg cag aga ctg acc aat 1490
 Gly Val Ile Ser Asp Asp Glu Cys Gln Glu Leu Gln Arg Leu Thr Asn

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gcg gca gca act tcg gga gat ggc tac cga ggt cag acc tcc cca cac 1538
 Ala Ala Ala Thr Ser Gly Asp Gly Tyr Arg Gly Gln Thr Ser Pro His

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acc cca aat gaa aag ttc tat ggt gtt act gtc ctc aaa gct ctc aag 1586
 Thr Pro Asn Glu Lys Phe Tyr Gly Val Thr Val Leu Lys Ala Leu Lys

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ctc ggg cag gaa gga aaa gtt cct ctg cag agt gcc cgc acc gca ctg 1634
 Leu Gly Gln Glu Gly Lys Val Pro Leu Gln Ser Ala Arg Thr Ala Leu

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caa tagaagagtc acaggctgag aggaaggaca gtagccaccc cgtccacgtg 1687
 Gln

gataactgca tcttgaatgc cgaagccttc atgtgtatca aggagccccc agcatacacg 1747

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ttcacagaac tagatgccaa gactgtgacg gcagaggtgc agccccagtg tggaagggt 1867

gtgggattct cttctggcac tgagaacca catggagtga aggtgtcac cagggggcag 1927

cgctgcgcca tcgcccgtg gttcacgtg gatcctcggc acagtgagag agacagggtg 1987

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actgttcttg gagtgggcat agcaggacac actcttctct gggcttggct gtaggtcag 2167

aatgcaggcc cagaaccacc ctggggccta tgtaggcagc tgccgtcagc agcgtgatat 2227

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aaaaaaaaaa ttaaaaattt gcgcggccgc aagaa 2322

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Met Ala Val Thr Lys Gly Gly Cys Trp His Asp Ala Ser Gly Arg Arg

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Arg Arg Arg Leu Thr Gly Cys Gly Glu Ser Glu Pro Gly Trp Asp Val

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Ala Ala Pro Asp Leu Leu Tyr Ala Glu Gly Thr Ala Ala Tyr Ser Arg

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Arg Asp Trp Pro Gly Val Val Leu Asn Met Glu Arg Ala Leu Arg Ser

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Arg Ala Ala Leu Arg Ala Leu Arg Leu Arg Cys Arg Thr Arg Cys Ala

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Thr Glu Leu Pro Trp Ala Pro Asp Leu Asp Leu Gly Pro Asp Pro Ser

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95

Leu Ser Gln Asp Pro Gly Ala Ala Ala Leu His Asp Leu Arg Phe Phe

100

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110

Gly Ala Val Leu Arg Arg Ala Ala Cys Leu Arg Arg Cys Leu Gly Pro

115

120

125

Pro Ser Ala His Leu Leu Ser Glu Glu Leu Asp Leu Glu Phe Asn Lys

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Arg Ser Pro Tyr Asn Tyr Leu Gln Val Ala Tyr Phe Lys Ile Asn Lys
 145 150 155 160

Leu Glu Lys Ala Val Ala Ala Ala His Thr Phe Phe Val Gly Asn Pro
 165 170 175

Glu His Met Glu Met Arg Gln Asn Leu Asp Tyr Tyr Gln Thr Met Ser
 180 185 190

Gly Val Lys Glu Ala Asp Phe Arg Asp Leu Glu Ala Lys Pro His Met
 195 200 205

His Glu Phe Arg Leu Gly Val Arg Leu Tyr Ser Glu Glu Lys Pro Gln
 210 215 220

Glu Ala Val Pro His Leu Glu Ala Ala Leu Gln Glu Tyr Phe Val Ala
 225 230 235 240

Asp Glu Glu Cys Arg Ala Leu Cys Glu Gly Pro Tyr Asp Tyr Asp Gly
 245 250 255

Tyr Asn Tyr Leu Asp Tyr Ser Ala Asp Leu Phe Gln Ala Ile Thr Asp
 260 265 270

His Tyr Val Gln Val Leu Asn Cys Lys Gln Asn Cys Val Thr Glu Leu

275

280

285

Ala Ser His Pro Ser Arg Glu Lys Pro Phe Glu Asp Phe Leu Pro Ser

290

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300

His Tyr Asn Tyr Leu Gln Phe Ala Tyr Tyr Asn Ile Gly Asn Tyr Thr

305

310

315

320

Gln Ala Ile Glu Cys Ala Lys Thr Tyr Leu Leu Phe Phe Pro Asn Asp

325

330

335

Glu Val Met His Gln Asn Leu Ala Tyr Tyr Thr Ala Met Leu Gly Glu

340

345

350

Glu Glu Ala Ser Ser Ile Ser Pro Arg Glu Asn Ala Glu Glu Tyr Arg

355

360

365

Arg Pro Asn Leu Leu Glu Lys Glu Leu Leu Phe Phe Ala Tyr Asp Ile

370

375

380

Phe Gly Ile Pro Phe Val Asp Pro Asp Ser Trp Thr Pro Glu Glu Val

385

390

395

400

Ile Pro Lys Arg Leu Gln Glu Lys Gln Lys Ser Glu Arg Glu Thr Ala

405

410

415

10040845-40001

Val Arg Ile Ser Gln Glu Ile Gly Asn Leu Met Lys Glu Ile Glu Thr

420

425

430

Leu Val Glu Glu Lys Thr Lys Glu Ser Leu Asp Val Ser Arg Leu Thr

435

440

445

Arg Glu Gly Gly Pro Leu Leu Tyr Glu Gly Ile Ser Leu Thr Met Asn

450

455

460

Ser Lys Val Leu Asn Gly Ser Gln Arg Val Val Met Asp Gly Val Ile

465

470

475

480

Ser Asp Asp Glu Cys Gln Glu Leu Gln Arg Leu Thr Asn Ala Ala Ala

485

490

495

Thr Ser Gly Asp Gly Tyr Arg Gly Gln Thr Ser Pro His Thr Pro Asn

500

505

510

Glu Lys Phe Tyr Gly Val Thr Val Leu Lys Ala Leu Lys Leu Gly Gln

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Glu Gly Lys Val Pro Leu Gln Ser Ala Arg Thr Ala Leu Gln

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<213> Artificial Sequence

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Synthesized Primer Sequence

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<210> 10

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<212> DNA

<213> Artificial Sequence

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<210> 11

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<212> DNA

<213> Artificial Sequence

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